We claim:

1. A method of measuring a temperature in an electrical apparatus, comprising the steps of:

(a) launching a broad-band light into a first glass fiber impressed with a first Bragg grating having a specific Bragg reflection wavelength λ_{BG1};

(b) optically coupling said first glass fiber with a second glass fiber impressed with a second Bragg grating having a specific Bragg reflection wavelength λ_{BG2} different from the specific Bragg reflection wavelength λ_{BG1} of the first Bragg grating and so coupled with the first glass fiber that reflected light from the first Bragg grating is conducted to said second Bragg grating;

(c) introducing said glass fiber into an electrical apparatus to position said first Bragg grating at a location at which a temperature is to be determined, whereby the Bragg reflection wavelength λ_{BG1} of said first Bragg grating is shifted as a function of change in said temperature at said location; and

(d) feeding nonreflected light from said second Bragg grating to a photodetector having an output voltage dependent upon detected light intensity and representing a measurement of said temperature at said location.

2. The method defined in claim 1 wherein said first glass fiber is formed with a plurality of said first Bragg gratings, said method further comprising positioning each of said first Bragg gratings at different locations in said electrical apparatus at which respective temperatures are to be measured, and varying the specific Bragg reflection wavelength λ_{BG2} of said second Bragg grating by mechanically deforming said second glass fiber in a micrometer range.

3. The method defined in claim 2 wherein the specific wavelengths of all of the glass fibers are so dimensioned that, upon a measured temperature in the electrical apparatus exceeding a predetermined critical temperature, an output voltage level at said photodetector will exceed a limiting value and automatically generate an alarm signal.

4. The method defined in claim 1 wherein the specific wavelengths of all of the glass fibers are so dimensioned that, upon a measured temperature in the electrical apparatus exceeding a predetermined critical temperature, an output voltage level at said photodetector will exceed a limiting value and automatically generate an alarm signal.

5. An apparatus for measuring a temperature in an electrical apparatus, comprising:

a first glass fiber impressed with a first Bragg grating having a specific first Bragg reflection wavelength λ_{BG1} and positioned at a location in an electrical apparatus at which a temperature is to be measured, whereby the Bragg reflection wavelength λ_{BG1} of said first Bragg grating is shifted as a function of change in said temperature at said location;

a source of broad-band light coupled to said first glass fiber for launching said broad-band light into said first glass fiber;

a second glass fiber impressed with a second Bragg grating having a specific second Bragg reflection wavelength λ_{BG2} different from the specific Bragg reflection wavelength λ_{BG1} of the first Bragg grating;

an optocoupler for coupling said first glass fiber with said second glass fiber so that reflected light from the first Bragg grating is conducted to said second Bragg grating; and

a photodetector coupled to said second glass fiber downstream of said second Bragg grating and receiving nonreflected light from said second Bragg grating, said photodetector having an output voltage dependent upon detected light intensity and representing a measurement of said temperature at said location.

6. The apparatus defined in claim 5 wherein a plurality of spaced-apart first Bragg gratings are written into said first glass fiber and are positioned at a corresponding number of locations of said electrical apparatus at which temperatures are to be measured, and said second Bragg grating has a variable second Bragg reflection wavelength λ_{BG2}.

7. The apparatus defined in claim 6 wherein said photodetector comprises a photodiode and a transimpedance amplifier connected to said photodiode.

8. The apparatus defined in claim 7, further comprising means for mechanically deforming said second glass fiber in a micrometer range to vary said specific second Bragg reflection wavelength λ_{BG2} of said second glass fiber.

9. The apparatus defined in claim 8 wherein said optocoupler has a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted.

10. The apparatus defined in claim 5 wherein said photodetector comprises a photodiode and a transimpedance amplifier connected to said photodiode.

11. The apparatus defined in claim 10, further comprising means for mechanically deforming said second glass fiber in a micrometer range to vary said specific second Bragg reflection wavelength λ_{BG2} of said second glass fiber.

12. The apparatus defined in claim 11 wherein said optocoupler has a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted.

13. The apparatus defined in claim 5, further comprising means for mechanically deforming said second glass fiber in a micrometer range to vary said specific second Bragg reflection wavelength λ_{BG2} of said second glass fiber.

14. The apparatus defined in claim 13 wherein said optocoupler has a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted.

15. The apparatus defined in claim 5 wherein said optocoupler has a branch to which a further glass fiber is coupled, said apparatus further comprising means for converting a light signal in said further glass fiber to a voltage, an output signal of said photodetector being normalized to the voltage into which the light signal in said further glass fiber is converted.